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SEED YIELD AND OIL CONTENT OF MUSTARD SOMACLONES (*BRASSICA JUNCEA* (LINN., CZERN. AND COSS.))

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VARIATION among plants regenerated from cultured cells or tissues is termed somaclonal variation¹. Such variation in the progenies of tissue culture raised plants is likely to adversely affect the yield². The objective of the present study was to evaluate the yield potential and oil percentage in the progenies of mustard somaclones.

These somaclones were obtained from mustard cultivar Rai-5 plants raised from cotyledon explants³. The first generation somaclones were designated as SC-1¹ and the subsequent progenies were named SC-2, SC-3 etc. Initially 92 somaclones were obtained in the SC-1 generation. The plants which showed maximum seed yield in the SC-1 were selected for evaluation in the SC-2 to SC-4 generations. Two separate yield trials were concluded one for the black seeded and the other for the yellow seeded selections. Over a period of three years, the trials were conducted in isolated plots to avoid any outcrossing as in a practical breeding programme. Each plot (3.6 m²) had three rows, 4 m long with 30 cm spacing between rows and 10 cm between plants. The oil content was estimated in the seeds harvested from 1986-1987 experiments using pulsed NMR method⁴.

The yield for three years and the oil content of the somaclones for one year are given in table 1. The main interest was to compare the yields of somaclones with respect to the yield of Rai-5, the parent, in the respective trials. The yields of all the six somaclones with yellow seed coat were statistically equal to that of Rai-5 in one year while the yields of black seeded ones were in general inferior to that of Rai-5. Similarly, in the yellow seeded Y-2, oil content was significantly higher than in Rai-5. The oil content in all the black seeded somaclones was lower than the parent and it was significantly lower in C-49.

Table 1 Yield and oil content of mustard somaclones

Cultivar	Yield			Oil content
	1984-85 (g/m ²)	1985-86 (g/m ²)	1986-87 (g/m ²)	1986-87 (%)
Rai-5 (parent)	98	-	221	32.8
Black seed				
C26-78	141	47	171	30.5
C27-78	107	43	163	30.1
C31-78	123	62	146	32.3
C43-78	109	70	158	31.2
C49-78	140	60	151	27.6
C51-78	132	42	146	30.6
C61-78	122	58	163	30.0
L.S.D. (5%)	38.6	21.6	33.3	0.42
Rai-5 (parent)	54	58	96	32.2
Yellow seed				
Y-1	94	42	75	30.9
Y-2	104	47	100	33.4
Y-3	75	36	71	31.7
Y-4	116	53	79	30.7
Y-5	90	53	104	31.4
Y-7	77	67	108	31.4
L.S.D. (5%)	21.4	13.9	25	0.78

Reduced yield in the *in vitro* regenerated plant progenies in other crops has been reported^{5,6}. However, somaclones could be a source of new genetic variability. In the present study, six out of 92 (6.5%) somaclonal progenies were equal in yield to their parental cultivar and the remaining ones were inferior.

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